

REMARKS

I. Status of the Claims

This paper is responsive to the Office Action dated April 9, 2004, which is the second action on the merits.

Claims 119-127 are pending, with claims 119-126 under examination. Claim 127 is withdrawn from consideration as directed to a non-elected invention. Some of the claims are amended, but no claims are added or canceled. Accordingly, claims 119-126 remain under examination.

Entry of the claim amendments does not introduce new matter into the disclosure.

II. Information Disclosure Statement

Applicants are appreciative of the Examiner's consideration of the information disclosure statement mailed February 12, 2004. Applicants note the Examiner's express confirmation in the Office Action that the co-pending applications listed in this statement have been considered. The Examiner, however, has not checked off those applications listed by application number because "applications are not properly listed in information disclosure statements" (Office Action, page 2). However, 37 C.F.R. 1.98(a)(1) states that any "information disclosure statement filed under § 1.97 *shall include*: (1) A list of all patents, publications, *applications*, or other information submitted for consideration by the Office . . ." (emphasis added). Accordingly, inclusion of pending applications in an IDS is permitted.

It is thus requested that these applications and all of the other disclosed information be checked off and a copy of the checked off PTO-1449 be provided to Applicants in the next communication from the Office. Furthermore, Applicants have not yet received a checked off copy of the information disclosure statement mailed on October 6, 2003. Applicants

thus request that the Examiner consider this information disclosure if it has not already been considered and provide Applicants a checked off copy confirming consideration of the references listed in this particular information disclosure statement.

Copies of the PTO-1449 forms for both of these Information Disclosure Statements are enclosed for the Examiner's convenience.

III. Oath/Declaration

Applicants thank the Examiner for noticing that the priority section in the declaration that has been filed is inconsistent with the first paragraph of the application. As the Examiner correctly points out, the declaration indicates that foreign priority is claimed to PCT/US97/17168 and PCT/US97/17885, whereas the first paragraph states that the current application is a continuation-in-part of these two applications.

37 C.F.R. § 1.76 (c)(1) provides a mechanism for addressing this issue. This section provides that a supplemental application data sheet can be supplied to correct information in a previously filed declaration, except to change inventorship, correspondence address, or citizenship. Accordingly, Applicants are submitting a supplemental application data sheet and request for corrected filing sheet to the Office of Initial Patent Examination to correct the priority information in the declaration by stating that the current application is a continuation-in-part of the foregoing two PCT applications. These submissions thus bring the declaration and application into conformity with one another. Copies of the supplemental application data sheet and request for corrected filing receipt are enclosed for the convenience of the Examiner.

IV. Claim Rejections under 35 U.S.C. § 112, First Paragraph

A. New Matter Rejection

Claims 123-126 stand rejected under 35 U.S.C. § 112, first paragraph, because the claims allegedly include subject matter that is not described in the specification in such a way as

to reasonably convey, at the time the application was filed, that the inventors had possession of the claimed invention.

Apparently, the Office does not dispute that each of the individual elements that are recited in the claims have basis, but instead contends that these are not discussed within the same context. MPEP § states "it is now well accepted that a satisfactory description may be in the claims or any other portion of the originally filed specification". An applicant can also show "possession of the claimed invention by describing the claimed invention with all its limitations using such descriptive means as words, structures, figures, diagrams, and formulas that fully set forth the claimed invention" (Id.). Because each of the elements of the claim are disclosed in one or more sections of the specification, Applicants submit that the current claims include no new matter.

Applicants further note that they have the option of presenting multiple claims with multiple limitations in various combinations. Dependent claims typically add new limitations to limitations of base claim. Sometimes, additional limitations are added into the base claim to overcome prior art. In this case, Applicants are exercising their option to recite limitations in a combination that read on the embodiment of most commercial interest.

In re Peters, 221 USPQ 952 (Fed. Cir. 1983) and *In re Rasmussen*, 211 USPQ 323 (Cust. & Pat. App. 1981) both held that applicants are entitled to eliminate a non-critical limitation from the claims in a reexamination application. Conversely, applicants should be entitled to add limitations into claims of an application, whether or not there is prior art that requires such limitations to be recited.

B. Enablement

All claims under examination are rejected because the specification is said not to enable one of ordinary skill in the art to make or use the claimed invention across its entire scope without undue experimentation. For the reasons that follow, Applicants respectfully disagree.

The Office cites to the *In re Wand* factors in evaluating whether the specification enables the current claims. The Federal Circuit in its *In re Wand* decision provides a test for assessing whether undue experimentation is required to practice an invention that is useful in this instance. The court stated:

[E]xperimentation needed to practice the invention must not be undue experimentation. The key word is 'undue,' not 'experimentation.' The determination of what constitutes undue experimentation in a given case requires the application of a standard of reasonableness, having due regard for the nature of the invention and the state of the art...*The test is not merely quantitative, since a considerable amount of experimentation is permissible, if it is merely routine, or if the specification in question provides a reasonable amount of guidance with respect to the direction in which the experimentation should proceed. In re Wands*, 8 USPQ2d 1400, 858 F.2d 731, 737 (Fed. Cir. 1988) (emphasis added).

Thus, under the test articulated in *Wands*, experimentation does not rise to the level of "undue" experimentation if *either* of two criterion are met: (1) the experimentation is merely routine, *or* (2) the specification provides a reasonable amount of guidance with respect to the direction experimentation should take. Within the context of the Examiner's concern that functional variants cannot be identified without undue experimentation, the specific issue thus becomes whether active variants can be identified (1) based upon routine screening methods, *or*

(2) based upon the guidance provided in the specification. Although only *one* of these two criteria need be satisfied, the application satisfies *both*.

With respect to the first criterion, claims that encompass active variants are enabled because such variants could be obtained using routine methods described in the specification and known in the art. As pointed out in the last response, variants having telomerase catalytic activity could readily have been obtained from the prototype sequences presented in the application (e.g., SEQ ID NOs:117 and 118) using routine methods. The skilled reader, for instance, can employ a random mutation strategy, using standard methods and reagents in conjunction with the sequences or deposits provided in this application. The standard texts *Protocols in Molecular Biology* (Ausubel et al. eds.) and *Molecular Cloning: A Laboratory Manual* (Sambrook et al. eds.) describe techniques employing chemical mutagenesis, cassette mutagenesis, degenerate oligonucleotides, mutually priming oligonucleotides, linker-scanning mutagenesis, alanine-scanning mutagenesis, and error-prone PCR. Another efficient method would be the *E. coli* mutator strains of Stratagene (Greener et al., *Methods Mol. Biol.* 57:375, 1996). A population of variants could thus be established without undue experimentation. The members of this population could then be screened for any of several different activities using the assays described at length in the specification (see, e.g., Examples 4-6).

The Office acknowledges at page 9 that "methods of mutagenesis and methods of assaying for telomerase activity were known in the art at the time the invention was made." So, although the process of making and screening the variants may have required some experimentation, such experimentation would not be "undue" because both the methods for making and screening the variants were "routine" as of the priority date.

The Office Action states on page 10 that in order to make working variants of SEQ ID NO:118, someone practicing this invention would need to make 20^{1132} variants and then screen all of them for telomerase catalytic activity. This is not correct. The enablement standard does not require that the reader be able to identify *all possible* active variants, but only

that they be able to identify a *reasonable number* without undue experimentation. As explained previously, the skilled reader could use standard technology for making mutant genes, guided by sequence analysis provided in the specification. This would enable them to make as many functional variants of TRT falling within the scope of the claims that they could possibly desire. This is all that § 112 ¶ 1 requires. The second criterion: namely, whether the specification provides sufficient guidance in the direction experimentation should proceed, is also satisfied because the specification provides abundant guidance regarding which amino acids could likely be altered without adversely affecting activity. The application, for instance, provides an extensive comparison of sequences and motifs from a number of different organisms (see, e.g., pages 40-47). One skilled in the art would thus know that alterations to non-conserved regions would less likely adversely affect activity as compared to alterations in conserved regions. The specification also describes examples of a variety of conservative substitutions that could be made that would have a higher likelihood of not disrupting the activity of the encoded protein (see, e.g., page 113, line to page 114, line 19). Furthermore, as noted in the last response, the claims themselves guide one of ordinary skill towards making alterations in the sequence in regions that lie *outside the six motifs recited in the claims* and towards creating sequences that are homologous to the human TRT sequence (SEQ. ID NO:118).

Example 14 of the USPTO Training Materials for the Written Description Guidelines (Guidelines). Applicants recognize that the current rejection is an enablement rather than a written description rejection, but this example is nonetheless pertinent to the current enablement rejection for the reasons that follow.

The current claims define the protein encoded by the claimed polynucleotides by both (i) structure (requiring the presence of 6 motifs *and* a defined level of sequence identity) and (ii) specific function ("telomerase catalytic activity when complexed with a telomerase RNA component"). Example 14 of the Guidelines indicates that defining proteins by both (i) sequence identity to a reference sequence, and (ii) a functional activity can satisfy the written description requirement. The current claims go beyond this because, as just described, they *also* require the

presence of *6 sequence motifs*, in addition to a certain level of sequence identity and activity. It would be inconsistent for the Office to say on one hand that a specification and claim set that satisfies criteria (i) and (ii) meet the written description guidelines, but then on the other hand to say that such a specification nonetheless fails to satisfy the enablement requirement for failure to describe how to make and use the invention.

In summary, the specification provides abundant guidance for the making of variants, and the skilled reader can obtain such variants using standard technology without undue experimentation. Accordingly, the claimed invention complies with the enablement requirement of § 112 ¶ 1. Withdrawal of this rejection is respectfully requested.

V. Claim Rejections under 35 U.S.C. § 112 Second Paragraph

Claims 119-126 are rejected under 35 U.S.C. § 112 second paragraph as being indefinite for various reasons. These claims have been amended to address the Examiner's concerns.

VI. Claim Rejections under Obviousness Type Double Patenting

All pending claims are rejected under obviousness-type double patenting as being unpatentable over claim 1 of U.S. Patent No. 6,093,809. The Office Action states that Applicants have agreed to file a terminal disclaimer or take other appropriate action upon indication of allowable subject matter.

It appears there may be some confusion regarding this rejection. In the last response, Applicants agreed to file a terminal disclaimer or take other appropriate action with respect to an obviousness-type double patenting rejection made with respect to U.S. Patent No. 6,261,836, not U.S. Patent No. 6,093,809.

If in fact that rejection is being maintained with respect to U.S. Patent No. 6,093,809, then Applicants reiterate that the rejection is inappropriate. As stated in the last response, double patenting is considered only with respect to what is claimed in the cited patent, not in what is disclosed. MPEP § 804(II)(B)(1), p. 800-22. The invention claimed in the '809 patent is *Euplotes aedicaulatus* TRT (Figure 9, SEQ. ID NO:1). Claim 119 covers polynucleotides encoding TRT that is at least 60% identical to human TRT (SEQ. ID NO:118). Figure 55 shows that *Euplotes aedicaulatus* TRT is considerably less than 60% identical to human TRT. The comparison of *Euplotes aedicaulatus* TRT and human TRT provided with the last response shows that these two TRTs are only about 21% identical at the amino acid level.

Accordingly, the claimed subject matter of the '809 patent does not anticipate claims in the present application. Furthermore, the claimed subject matter of the '809 patent does not suggest how to obtain the subject matter claimed in the present application. Thus, if the rejection is indeed with respect to the '809 patent, then withdrawal of this rejection is respectfully requested.

If, on the other hand, the intent of the Office was to maintain the rejection with respect to claims 119-126 of U.S. Patent 6,261,836, then Applicants reiterate that they will file a terminal disclaimer or take other appropriate action upon indication that the application is otherwise in condition for allowance.

Clarification is requested.

VII. Claim Rejections under 35 U.S.C. § 102

A. U.S. Patents 6,093,809 and 6,309,867

All the pending claims are rejected under 35 U.S.C. 102(e) as anticipated by U.S. Patent No. 6,093,809 and separately by U.S. Patent No. 6,309,867. The applications to which the instant application claims priority are said not to enable the current claims. The Office thus

concludes that the current application is only entitled to its filing date. Applicants respectfully disagree.

It is initially noted that the cited '809 patent issued from U.S. Application No. 08/851,843, which is one of the applications to which the instant application claims priority. The cited '867 patent issued from U.S. Patent Application No. 09/430,323. The '323 application in turn is a continuation application of U.S. Application No. 08/854,050, which is also a priority application of the instant application. The cited patents thus correspond to an application to which the instant application claims priority or to a child of an application to which the instant application claims priority.

For the Patent Office to cite the '809 and '867 patents as prior art under § 102, these patents (and the applications to which they correspond) must enable the currently claimed invention [see, e.g., *Akzo N.V. v. U.S. Int'l Trade Comm'n*, (1 USPQ2d 1241 (Fed. Cir. 1986), *cert. denied*, 482 U.S. 909 (1987)), which states "the prior art reference must be enabling, thus placing the allegedly disclosed matter in the possession of the public."]. So if the cited patents are not enabling they cannot be prior art. If the cited patents, on the other hand, are enabling for the claimed invention, then the applications to which the instant application claims priority also enable the currently claimed invention. The Patent Office cannot have it both ways.

B. Linger and Lendvay

Claim 119 stands rejected as anticipated by Linger et al (GenBank Accession No. U95964) or by Lendvay. Applicant's respectfully disagree because the Office has not demonstrated that either reference teaches each and every element of claim 119 as required for an anticipation rejection. The Office specifically has not shown that the sequences discussed in either reference have at least 60% sequence identity to the claimed polynucleotides.

VIII. Rejoinder of Claim 127

Claim 127 has now been amended to cover a method of increasing proliferative capacity in vitro. Claim 127 is a method claim that depends and incorporates the limitations of product claim 119. Accordingly, upon establishing that claim 119 is free of prior art, then claim 127 will also be free of prior art.

The use of telomerase reverse transcriptase to increase proliferative capacity of cells in vitro is well established (see., for example, A. Bodnar et al., "Extension of life-span by introduction of telomerase into normal human cells." Science 279:349-52, 1998). It is respectfully submitted that using the product of claim 119 in vitro in the manner of claim 127 raises no further issues of patentability.

For this reason, applicants request that claim 127 be rejoined into the group under examination, in accordance with MPEP § 821.04.

CONCLUSION

Applicants respectfully request that all rejections be reconsidered and withdrawn.

The amendments and remarks presented above place the application in better condition for allowance or appeal. Accordingly applicant requests entry of this paper into the application, pursuant to 37 CFR § 1.116(b).

Respectfully submitted,



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Attachments
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